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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,264	11/23/2001	Hiroshi Sugiura	216379US2	2415
22850 7590 03/23/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER MARTIN, ANGELA J	
			ART UNIT 1745	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		03/23/2007	ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/23/2007.

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Office Action Summary

Application No.

09/990,264

Applicant(s)

SUGIURA ET AL.

Examiner

Angela J. Martin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13,40 and 41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13,40 and 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is responsive to the Amendment filed on December 19, 2006. The Applicant has amended claims 1, 8, 40, and 41. However, Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, this action is made final.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 8, 40, 41 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for "an extended period of time", does not reasonably provide enablement for "ageing degradation." The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. Applicant claims "ageing degradation of the fuel cell over time." However, there is no support for "ageing degradation" in the specification. In addition, the declaration stating that "ageing degradation...is gradual and becomes noticeable only after several hundred hours of use" does not further define "fuel cell...has been used for an extended period of time" in paragraphs [0004] and [0006] of the specification.

Claim Rejections - 35 USC § 102/103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-13, 40, 41 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Harashima, U.S. Pat. No. 5,290,641.

Rejection of claims 1-7, 40 drawn to a fuel cell output characteristic estimating apparatus; claims 8, 9, 11-13, 41 drawn to a fuel cell system.

Harashima teaches a fuel cell output characteristic estimating apparatus comprising a current-voltage detector and a controller that estimates the output characteristic of the fuel cell on the basis of the current and voltage between the terminals, detected by the current-voltage detector, and a predetermined basic output characteristic of the fuel cell (col. 3, lines 40-56; col. 4, lines 4-6). It teaches the controller derives basic output characteristic from a temperature of the fuel cell (col. 4,

lines 48-60). It also teaches the controller derives the basic output characteristic from an output characteristic corresponding to the temperature of the fuel cell (col. 5, lines 10-23). It teaches the controller estimates the output characteristic on the basis of it corresponding to the temperature of the fuel cell (col. 6, lines 24-35). Additionally, it teaches a fuel cell system having a fuel cell, the fuel cell system comprising a fuel cell output characteristic estimating apparatus comprising a current-voltage detector and a controller that estimates the output characteristic of the fuel cell on the basis of the current and voltage between the terminals, detected by the current-voltage detector, and a predetermined basic output characteristic of the fuel cell; sets a target output of the fuel cell using the output characteristic; and adjusts an output of the fuel cell such that the set target output is generated by the fuel cell (col. 7, lines 40-56). It also teaches the controller changes supply of the electric power to or from the power supply when the set target output is in excess of or short of the required output of the fuel cell system (col. 7, lines 57-65). It also teaches the controller changes the voltage between the terminals into a voltage corresponding to the set target output (col. 8, lines 60-68 and col. 9, lines 1-16).

Thus, the claims are anticipated.

However, if the claims are not anticipated, in the alternative, they are obvious because although Harashima does not teach "output characteristic of the fuel cell has undergone a change due to ageing degradation of the fuel cell over time," the fuel cell output would inherently change due to ageing degradation over time. Additionally, although Harashima does not teach estimating an internal resistance of the fuel cell, the

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internal resistance and current are inversely proportional to each other, so the estimation of the current would be inversely proportional to the resistance. In addition, although the prior art of record does not teach the controller includes a transformer connected to terminals and transforms the voltage between the terminals to be applied to output terminals of the fuel cell, the prior art of record teaches a control system for controlling the power of the fuel cell by inverting the output of the fuel cell and supplying the output power to an external load (col. 3, lines 40-50; col. 4, lines 19-30), which is the role of the transformer.

See MPEP 2112. *In re Best*, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 . *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Response to Arguments

6. Applicant's arguments filed 12/19/06 have been fully considered but they are not persuasive. Applicant argues: "The claims have also been amended to clarify that the change in the output characteristic of the fuel cell over time is due to ageing degradation of the fuel cell over time. Basis for this is found in paragraphs [0004] ("owing to a change in the output characteristic of the fuel cell as it has been used for an extended period of time") and [0006]. The Manabe declaration mentioned below sets forth that one skilled in the art would understand that estimating "the output characteristic of the fuel cell after the output characteristic of the fuel cell has undergone a change due to aging degradation of the fuel cell over time" means estimating the reduction in the

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actual power output, as compared to the nominal power output, due to ageing degradation of the fuel cell components over several hundred hours, or more, of use." However, the scope of "extended period of time" in sections [0004] and [0006] is different from the scope of "ageing degradation" in the amended claims and in the 37 CFR 1.132 declaration. There is no support for the amendment, "ageing degradation" in the specification. In addition, the declaration stating that "ageing degradation...is gradual and becomes noticeable only after several hundred hours of use" does not further define "fuel cell...has been used for an extended period of time" in [0004] and [0006] in the specification.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



RAYMOND ALEJANDRO
PRIMARY EXAMINER

AJM